Strategic IT management - 37E00200

Course summary

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Main themes of the course

1. Sociotechnical change and Design capital
   - Technical debt
   - Digital options
   - Discontinuance of IT/IS
2. Sourcing of IT resources
   - Outsourcing
   - Cloud
3. Information infrastructures and data-driven decision making
   - Data as new oil
   - Structured data
   - Deriving value from data
4. Automation and Artificial intelligence
   - Human-machine interaction
   - Explainability
   - Erosion of skills

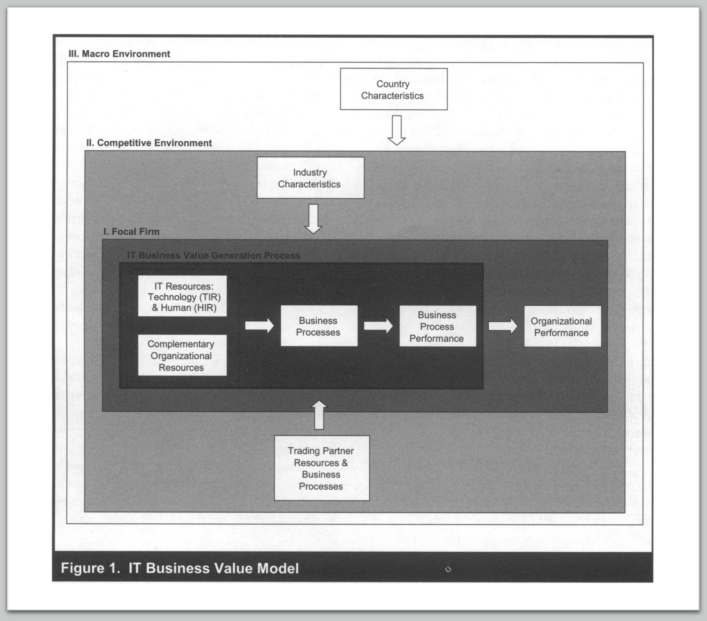

Figure 1. IT Business Value Model

Melville, Nigel, Kenneth Kraemer, and Vijay Gurbaxani. "Information technology and organizational performance: An integrative model of IT business value." *MIS quarterly* 28.2 (2004): 283-322.

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1. Sociotechnical change and Design capital

Technical debt

Digital options

Discontinuance of IT/IS

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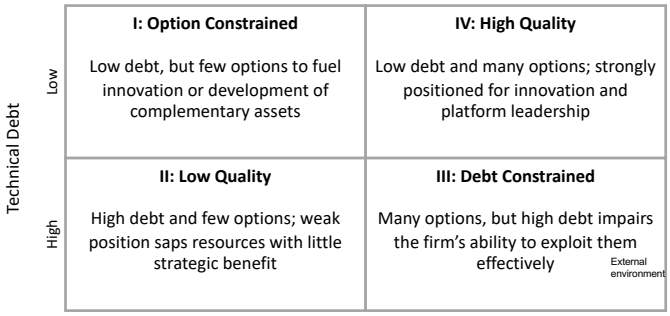

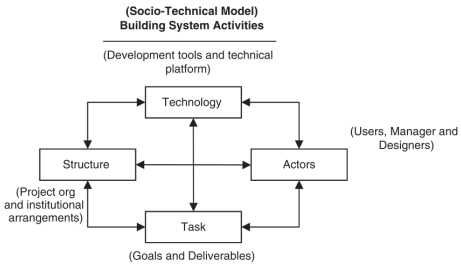

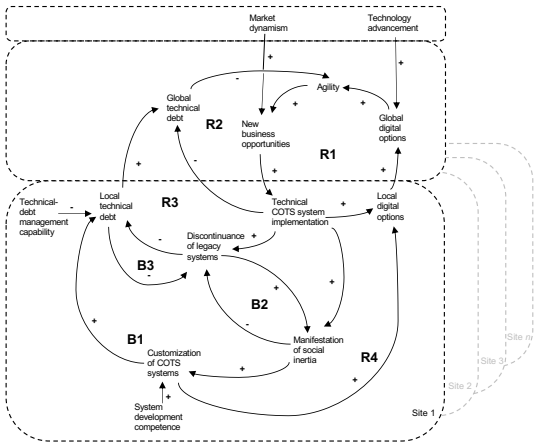

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2. Sourcing of IT resources

Outsourcing
Cloud

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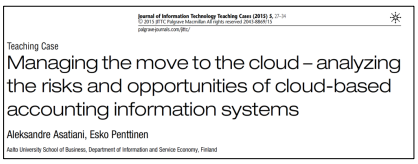
Governance structures and transaction costs

	Asset specificity	
Frequency	Non-specific	Specific
Occasional	Market governance	Bilateral or trilateral governance
Recurrent	Market governance	Hierarchy



Teaching Case

Managing the move to the cloud – analyzing the risks and opportunities of cloud-based accounting information systems

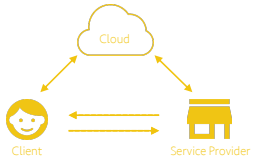
Aleksandre Asatiani, Esko Penttinen

Aalto University School of Business, Department of Information and Service Economy, Finland

IT outsourcing vs. Cloud computing

- IT outsourcing is an act of delegating some or all of the IT-related activities to external providers
- IT outsourcing is the traditional way for organizations to transition from capital expenditure to operating expenditure
- Cloud computing is a more recent model for provisioning and consuming IT capabilities on a need and pay by use basis (Dhar 2012)
- Similar to IT outsourcing, the main motivation for cloud computing lies in the transition from CapEx to OpEx

Work task arrangements in cloud



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3. Information infrastructures and data-driven decision making

Data as new oil
Structured data
Deriving value from data

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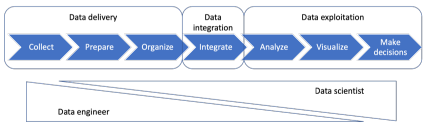
Steps towards successful data exploitation



Source: CEMS KONE case group 2016

	Concept(s)	Definition	Example from accounting
Levels of structuredness	Unstructured data	A mishmash of semantic entities that can differ from an observation to another; it may not always be clear what constitutes an individual observation	Data residing in a note written with a text editor to be refined into a receipt to be booked into an accounting information system
	Semi-structured data	Data organized using an irregular or unstable data structure which hampers the usability and interoperability of the data	Data residing in an electronic sales invoice adhering to a proprietary XML-format that needs to be converted to the XML-format of electronic purchase invoices
	Structured data	Data residing, for instance, in a database under a rigid and regular structure with well-defined fields that correspond to distinct variables	Company's financial statement stored in a standardized, taxonomy-compliant XBRL instance document
Types of data	Bitstring	Series of binary distinctions encoded into a material medium	Magnetic marks on a hard disk platter
	Data token, raw unorganized facts, invariances	Data token refers to the most granular element of data; also called invariances as they remain unchanged when a specific transformation is applied	"Deferred Tax Assets, Net" in an XBRL instance document containing a company's financial statements
	Data object	Aggregated or computed entity made out of data tokens	Key financial figure computed using data tokens such as return on capital employed
	Metadata	Data that provide information about other data	Metadata in an XBRL instance document (e.g., currency, periodicity, and credit/debit status of Deferred Tax Assets, Net)
	Data model or schema	Definition of the organization of data; articulates allowed data tokens and their attributes, and specifies the possible relationships between them	XBRL taxonomy (e.g., US GAAP XBRL taxonomy for financial statements)
	Data source	A location from where the data being used originates	Relational database (e.g., the EDGAR repository for US GAAP XBRL financial statements)


Journal of Information Technology Teaching Cases (2017) 7, 43-50
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Teaching Case

Onboarding customer companies to electronic invoicing platform – developing a marketing and a partnering strategy for Tieto, an e-invoicing service provider

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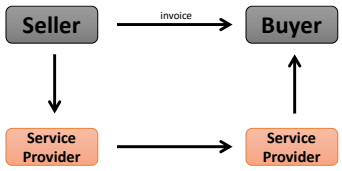
Four-corner model



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4. Automation and Artificial intelligence

Human-machine interaction
Explainability
Erosion of skills

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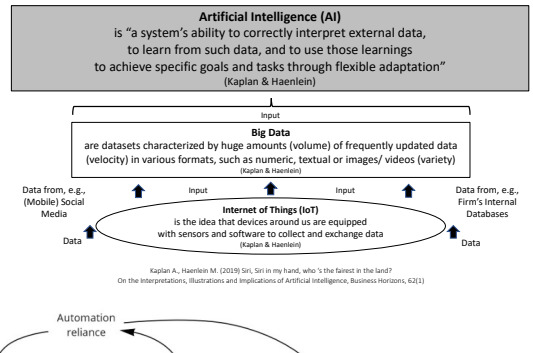
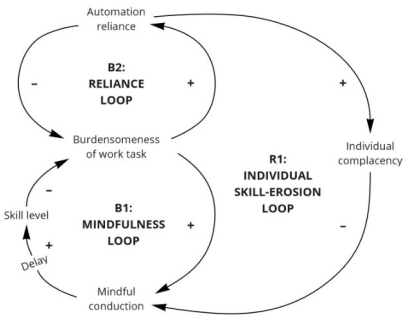
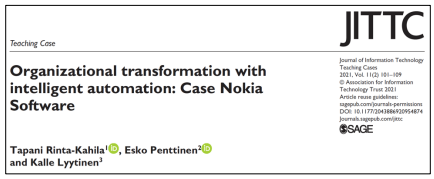
Definition of Artificial Intelligence … and Related Concepts



Kaplan A., Haenlein M. (2019) Siri, Siri in my hand, who 's the fairest in the land?
On the Interpretations, Illustrations and Implications of Artificial Intelligence, Business Horizons, 62(1)





Teaching Case

Organizational transformation with intelligent automation: Case Nokia Software

Tapani Rinta-Kahila[1], Esko Penttinen[2] and Kalle Lyytinen[3]

JITTC

Journal of Information Technology Teaching Cases
2021, Vol. 11(2) 101–109
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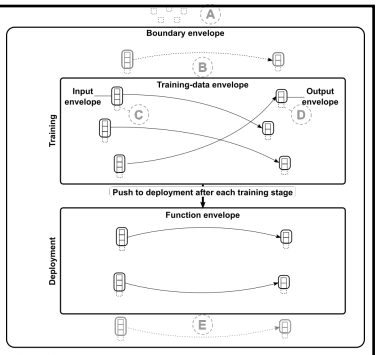

Legend:

An input or output vector of data. One vector element (dashed gray line) has been enveloped out and is not used in the model. Rectangles with bold stokes denote envelopes.

Examples of what the envelope scope excludes:

- **A** Events and states-of-affairs in the world that the model does not need to "know" about. [Boundary]
- **B** Input–output pairs that could be used in training data but are suspected of bias, errors, or represent cases for which not enough data exists yet and the model should not be allowed to learn from. [Training-data envelope]
- **C** Input sources that would provide low-quality information. [Input envelope]
- **D** Outputs that a model could provide but that are biased, not needed, or redundant. [Output envelope]
- **E** Purposes for which the trained model will not be used (e.g., for ethics reasons), even if it would be capable of accurate performance. [Function envelope]

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Learning outcomes (from our 1st session)

- Learn about frameworks and models to analyze technology-triggered organizational change
  - Grasping the so-called “socio-technical approach” to information systems
- Discover the multifaceted nature of artificial intelligence
  - Seeing beyond the hype of organizational AI
- Understand the importance of digital infrastructures as important antecedents to data analytics
  - Harnessing the benefits of structured data
- Be better prepared for MSc thesis work
  - Reading academic articles containing seminal theoretical frameworks

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